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EXAMINER	
KRONENTHAL, CRAIG W	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/007,085	PELLY ET AL.
	Examiner	Art Unit
	Craig W Kronenthal	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28 and 30-43* is/are rejected.

7)☐ Claim(s) *29 and 33* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 April 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/06/01*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.
A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n). Claim 33 depends on claim 26, but is separated by claims 27-32, which are not dependent on claim 26.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (PN 6,385,329). (hereinafter Sharma)

Regarding Claim 1: Sharma discloses an apparatus for detecting and recovering data embedded in information material, the data (raw bits, Fig. 2, 206) having been

embedded in the material (input image, Fig. 2, 220) using a transform domain representation of at least one of said data and said information material [(col. 10 lines 55-67), the embedder depicted in Figure 2, contains a combiner (228) which combines the watermark transform coefficients (Fig. 2, 226) with the input image transform coefficients (220)] by arranging for the data (206) to modulate a predetermined data sequence (Fig. 2, 208) to form modulated data (Fig. 2, 214) and combining said modulated data (214) with said material (220) [(col. 9 lines 39-49), the raw bits (206) are modulated by the carrier signal (208) by a modulator (Fig. 2, 212) and this modulated data (214) becomes the watermark signal (226) which is combined (228) with the input image (220)], the apparatus comprising:

- A transform processor (Fig. 4, 402) operable to transform the material (Fig. 4, 400) into a transform domain representation of said information material (col. 11 lines 19-21). [The image data (400) suspected to be watermarked is transformed (402) in the detector (depicted by Figure 4) into the spatial frequency domain.]
- A correlation processor (Fig. 4, 404/Fig. 6, 610) operable to correlate transform domain data symbols bearing said modulated data from said transform domain representation (Fig. 6, 600) with a reproduced version of said predetermined data sequence (Fig. 6, 612) to form a correlation output signal (output of 610) and to recover said embedded data from said correlation output signal, wherein said correlation processor (404/610) is operable to perform said correlation of transform domain data symbols with data symbols of the predetermined data sequence, for a plurality of start positions in said transform domain, said start

positions representing at least one relative possible shift of said transform domain data. [A series of correlations are performed at block 610 (also 404) to correlate the transformed orientation pattern (612) representing the predetermined data sequence used in embedding (col. 5 lines 61-64) and the transformed image block (600) representing the spatially transformed watermarked image (col. 12 lines 42-44 and also col. 11 lines 21-23). The correlation is performed for a plurality of start positions as disclosed by the process of sliding the orientation pattern (612) over the transformed image (600) (col. 12 lines 44-47). The sliding process includes placing the orientation pattern (612) at each point in the transformed image (600) accounting for all possible shifts of the transform domain data. Using the results of the correlation (404/610) the watermark is recovered and can be extracted through the process depicted in Figure 5 (col. 11 lines 26-34).]

- And if said shift of said transform data represents a loss or corruption of transform domain data symbols, omitting corresponding symbols from said predetermined data sequence in said correlation, said lost or corrupted transform domain data symbols and said corresponding symbols of said predetermined data sequence not being included in calculating the correlation output signal (col. 7 lines 49-52). [Sharma discloses the use of a filter to remove parts of the watermarked signal that are unlikely to be helpful and/or would interfere with the watermark message. Such parts would include lost or corrupted transform domain data symbols. Sharma also discloses omitting or removing the

corresponding symbols from said predetermined data sequence from the correlation process (col. 7 lines 61-64).]

Regarding Claim 2: Sharma discloses an apparatus as claimed in claim 1, wherein said plurality of start positions includes representations of a plurality of possible shifts of said transform domain symbols from an original position in which said modulated data was combined with said symbols [The correlation is performed for a plurality of start positions as disclosed by the process of sliding the orientation pattern (612) over the transformed image (600) (col. 12 lines 44-47). The sliding process includes placing the orientation pattern (612) at each point in the transformed image (600) accounting for all possible shifts of the transform domain data from an original position.]

Regarding Claim 3: Sharma discloses an apparatus as claimed in claim 2, wherein said possible shifts correspond to shifts of an integer number of transform domain data symbols. [The transform process (Fig. 4, 402) is disclosed as transforming the image data (400) to a spatial frequency domain (col. 11 lines 20-21). A wavelet transform is one type of spatial frequency transform. Sharma also specifically discloses the wavelet transform being used for decoding (col. 33 lines 4-5). It is inherent in a wavelet transform that shifts of a watermark in an image are represented by integer changes to the coefficients of the transformed watermarked image.]

Regarding Claim 4: Sharma discloses an apparatus as claimed in claim 1, comprising a control processor operable to detect an amount by which said information material has shifted in accordance with which of said start positions provides a correlation output signal with the largest magnitude, said start position being subsequently used to detect and recover said embedded data in accordance with said correlation output signal (col. 12 lines 47-51 also col. 11 lines 22-26). [The correlation process (Fig. 4, 404/Fig. 6, 610) also measures the correlation at an array of discrete positons and determines the corresponding scale and rotation parameters which represents the amount by which the information material has shifted. Sharma also discloses the selection of the highest correlation and outputting its corresponding orientation parameters (scale and rotation parameters) to subsequently re-orient the image data (Fig. 4, 408) and extract the watermark data (extracting process depicted in Fig. 5) (col. 11 lines 26-34).]

Regarding Claim 5: Sharma discloses an apparatus as claimed in claim 1, wherein a shift of data symbols representing said information material by a first number of information material data symbols, produces a shift by a second number of transform domain symbols of said representation of said information material in said transform domain, said apparatus comprising a control processor operable to shift said information material by an amount determined in accordance with said first and second numbers to the effect that said plurality of start positions of said correlation of said predetermined data sequence with said transform domain data symbols represents a

corresponding plurality of integer shifts of said information material data symbols. [The transform process (Fig. 4, 402) is disclosed as transforming the image data (400) to a spatial frequency domain. A wavelet transform is one type of spatial frequency transform. Sharma also specifically discloses the wavelet transform being used for decoding (col. 33 lines 4-5). It is inherent in a wavelet transform that shifts of a watermark in an image are represented by integer changes to the coefficients of the transformed watermarked image.]

Regarding Claim 6: An apparatus as claimed in claim 5, wherein said correlation at each of said plurality of start positions with said transform domain data symbols is performed with and without said shift. [Since the orientation pattern is slid across the image data it is tested for all shift values including a zero shift.

Regarding Claim 8: Sharma discloses an apparatus as claimed in claim 6, wherein said control processor is operable to detect said amount by which said information material has shifted in accordance with which of said start positions and which of said shift and not shifted version of said information material provides the correlation output signal with the highest value (col. 12 lines 44-51). [The sliding of the orientation pattern over the transformed image tests all shifted possibilities as well as the not shifted possibility. The correlation (404/610) outputs the highest correlation of all possibilities and therefore this may be either the shifted or not shifted version.]

Regarding Claim 9: Sharma discloses an apparatus as claimed in claim 1, wherein said predetermined data sequence is a Pseudo Random Bit Sequence, said data symbols being bits (col. 15 lines 11-13). [The data symbols embedded into the information material are raw bits (Fig. 2, 206) as explained regarding claim 1. They are modulated with a carrier signal (Fig. 2, 208) also explained in claim 1. This carrier signal may be a pseudo random number.]

Regarding Claim 10: Sharma discloses an apparatus as claimed in claim 1, wherein said transform domain has a plurality of sub-bands, said modulated data being added to at least one of said sub-bands, said correlation processor being operable to correlate the transform domain data symbols from the sub-band with said predetermined data sequence except said excluded data symbols (col. 11 lines 5-13). [The embedding process uses a predefined function to embed the modulated data (watermark signal) and input image (transform domain) having plural sub-bands. The modulated data (watermark signal) adjusts the sub-bands. The correlation process (404/610) correlates the transform domain data symbols from the sub-bands (target image data) with the predetermined data sequence (orientation pattern). This target image data represents the transform domain data symbols from the sub-bands because the image data is transformed (402) into the spatial frequency domain before the correlation process (404) (col. 11 lines 19-21). The only symbols not included in the correlation are those filtered out before the recovering or correlation of the watermark begins (col. 7 lines 49-52).]

Regarding Claim 11: Sharma discloses an apparatus as claimed in claim 10, wherein said lost transform domain data symbols are a predetermined number of symbols at an edge of said sub-band (col. 35 lines 1-4). [If the filter threshold can be set to a predetermined cutoff then it is known, which transform domain symbols will be lost. Furthermore, the filter threshold determines the sub-band edge at which the transform domain data symbols are removed below or above.]

Regarding Claim 12: Sharma discloses an apparatus as claimed in claim 1, wherein said transform is the discrete wavelet transform, said transform data symbols being wavelet coefficients, each symbol of said modulated data being added to the wavelet coefficients (col. 8 lines 51-55). [A wavelet transform is discloses as being one of the possible spatial frequency transforms used in the embedding. It is inherent that this transform produce wavelet coefficients. Also the symbols of said modulated data (watermark signal) are added to the wavelet coefficients in the embedding process (col. 10 lines 59-63)

Regarding Claim 13: Sharma discloses an apparatus as claimed in claim 1, wherein said information material in which said data is embedded is one of video images, audio signals, video and/or audio signals (col. 3 lines 44-46). The information material (host signal, Fig. 1, 100/Fig. 2, 220) is disclosed as being an image, audio sequence, or video sequence.]

Regarding Claim 14: Sharma discloses an apparatus for embedding data (raw bits, Fig. 2, 206) into information material (input image, Fig. 2, 220), which data can be detected and recovered by the apparatus as claimed in any preceding claim, said apparatus comprising:

- A combining processor (Fig. 2, 212) operable to modulate a predetermined data sequence (Fig. 2, 208) with said data (206), to form modulated data (watermark information signal, Fig. 2, 214) and to combine (Fig. 2, 228) said modulated data (214) with said material (220) in one of a transform domain representation or an inverse transform domain representation of said material (col. 10, lines 59-63), wherein said combining processor (228) is operable to form said modulated data (214) into a transform domain representation, by introducing said data into at least one of a plurality of transform domain sub-bands (col. 11 lines 5-13), said modulated data being added to data symbols within said sub-band, including transform data symbols within extremes of said sub-band. [The watermark data in the form of raw bits is modulated with the carrier signal representing a predetermined data sequence. This modulated data or watermark information signal (214) is transformed (not shown in Figure 2, but understood from col. 10 lines 60-61, "transform domain coefficients in the watermark signal). The input image (220) is also transformed in the same manner as the modulated data (214) (also not shown in Figure 2, but understood from col. 10 line 62, "coefficients in the input image"). The combined modulated data coefficients (214) and input

image coefficients form watermarked image coefficients (230). The modulated data coefficients may be embedded anywhere in the sub-bands of the input image coefficients, but only in these sub-bands thereby creating the extremes. Furthermore, the modulated data may be added to plural sub-bands of the input image coefficients as indicated in col. 11 lines 5-13.]

Regarding Claim 15: Sharma discloses an apparatus as claimed in claim 14, wherein said at least one sub-band represents in said transform domain low frequencies in one direction and high spatial frequencies in another direction (col. 33 lines 60-63). [A discrete wavelet transform (DWT) is used for embedding. It is inherent that a DWT sub-band represents transform domain low frequencies in one direction and high spatial frequencies in another direction.]

Regarding Claim 16: Sharma discloses an apparatus as claimed in claim 14, wherein said predetermined data sequence is a Pseudo Random Bit Sequence (PRBS) each bit of said PRBS being represented in bipolar form, said data to be embedded modulating the bits of said PRBS by reversing the sign of each bit, said modulated Pseudo Random Bit Sequences being added to respective transform domain data symbols of said sub-band (col. 33 lines 45-52). [The PRBS can be used as a carrier signal to modulate the raw bits, which represent the data to be embedded. Depending on the binary values of the raw bits, the PRBS bits are reversed in polarity. When all the bits of the PRBS are modulated, they are added to the transform domain data symbols (Fig. 2, 228).]

Regarding Claim 17: Sharma discloses an apparatus as claimed in claim 14, wherein said transform is the Discrete Wavelet Transform, said modulated data being added to said sub-band at each of said wavelet coefficients between the edges of said sub-band (col. 33 lines 60-63). [The transform used in embedding is the Discrete Wavelet Transform. Also the modulated data may be embedded throughout the information material in which case the modulated data would be added to each wavelet coefficient (col. 33 lines 52-55).]

Regarding Claim 18: The analogous arguments made regarding claim 1, are applicable to claim 18. The correlation is repeated for each position as the orientation pattern is slid over the transformed image (col. 12 lines 44-47).

Regarding Claim 19: Sharma discloses a signal (Fig. 2, 230) representing information material in which data has been embedded by the apparatus according to claim 14 (col. 10 lines 57-59). The watermarked signal (230) is the signal representing the combination of the information material (input image, Fig. 2, 220) and the embedded data (watermark signal, Fig. 2, 226).

Regarding Claim 20: The analogous arguments made in claim 1 are applicable to claim 20.

Regarding Claim 21: The analogous arguments made in claim 18 are applicable to claim 21.

Regarding Claim 22: The analogous arguments made in claim 1 are applicable to claim 22.

Regarding Claim 23: The analogous arguments made in claim 1 are applicable to claim 23. In addition Sharma discloses the correlation sequence comprising a plurality of predetermined data sequence versions (col. 12 lines 42-45). In order to correlate the transformed orientation pattern with the transformed image block at each point throughout the sliding, it is necessary to use a shifted orientation pattern. The orientation pattern represents the predetermined data sequence so a shifted orientation pattern represents a shifted version of the predetermined data sequence.

Regarding Claim 24: Sharma discloses an apparatus as claimed in claim 23, wherein the number of said plurality of versions of said predetermined data sequences is equal to a number of possible relative shifts of the information material data symbols to which the modulated data have been added, each of said plurality of predetermined data sequences being shifted with respect to each other, each shift representing a number of symbols by which the information material data symbols may have been shifted (col. 12 lines 42-45). [Since the orientation pattern is used in a sliding process for correlation, the number of times it is shifted must equal the number of possible slide positions.

Furthermore, the sliding moves the orientation pattern one position at a time, so each shifted orientation pattern is a relative shift of the previous shifted orientation pattern. Also, each position the orientation pattern is slid to represents a possible number of symbols by which the information material data symbols may have been shifted.

Regarding Claim 25: Sharma discloses an apparatus as claimed in claim 23, wherein each of said predetermined data sequence versions is a different predetermined data sequence of a set of possible predetermined data sequences which may have been used to form said modulated data (col. 5 lines 56-59). The carrier signal is used as a predetermined data sequence to modulate the data to be embedded into the information material as explained in claim 1. The carrier signal may be different for different watermarks in different portions of the image. These different carrier signals are used for correlation with the different watermarks suspected to be embedded in the transformed image data.

Regarding Claim 26: The analogous arguments made regarding claim 9 are applicable to claim 26.

Regarding Claim 27: Sharma discloses an apparatus as claimed in claim 23, wherein said correlation processor is operable in combination with said data sequence processor,

- To divide each of said predetermined data sequence versions into two or more groups (col. 5 lines 56-59). A carrier signal which represents a predetermined data sequence can be divided as the image is divided so that effectively each block of the image has its own carrier signal.
- To combine the predetermined data sequence version from each group to form a corresponding plurality of correlation data sequences, said data processor being arranged to correlate said information material data symbols with which said modulated data have been combined, with each of said correlation sequences, to form, for each, a correlation output signal, and said correlation processor is operable to identify which of said groups of predetermined data sequence versions includes the predetermined data sequence version for recovering said embedded data symbols from the corresponding correlation output signal. [Sharma discloses that different carriers would be used for different watermarks within the same image (col. 5 lines 56-59). Sharma also discloses that a watermark could be redundantly encoded (col. 5 lines 41-45). Given this information it is inherent that the carrier signals for the same watermark are combined in an orientation pattern. So when multiple watermarks exist there will be multiple orientation patterns. To detect each watermark the respective orientation pattern is used.]

Regarding Claim 28: Sharma discloses an apparatus as claimed in claim 27, wherein said correlation processor is operable to compare said correlation output signal with a

threshold and to identify which of said groups includes the predetermined data sequence version for recovering said embedded data from the comparison (col. 7 lines 39-48). [The amount of correlation is compared with a threshold and when it is exceeded the watermark is determined to be contained within the image. The group which has an orientation pattern that results in the threshold being exceeded is identified as having the orientation parameters used for recovery of the data (col. 11 lines 26-28).

Regarding Claim 30: The arguments made regarding claim 16 are applicable to claim 30. Claim 16 explains the reversing of the polarity, while claim 23 which claim 30 depends on explains the formation of the correlation sequence from predetermined data sequences.

Regarding Claim 31: The analogous arguments made regarding claim 1 concerning the transform processor are applicable to claim 31.

Regarding Claim 32: The analogous arguments made regarding claim 12 are applicable to claim 32.

Regarding Claim 33: The analogous arguments made regarding claim 16 are applicable to claim 33.

Regarding Claim 34: The analogous arguments made regarding claim 1 are applicable to claim 34.

Regarding Claim 35: The analogous arguments made regarding claim 13 are applicable to claim 35.

Regarding Claim 36: The analogous arguments made regarding claim 23 are applicable to claim 36.

Regarding Claim 37: The analogous arguments made regarding claim 25 are applicable to claim 37.

Regarding Claims 38 and 40: The analogous arguments made regarding claim 23 are applicable to claim 38 and 40.

Regarding Claim 39 and 41: The analogous arguments made regarding claim 36 are applicable to claim 39 and 41.

Regarding Claim 42: The analogous arguments made regarding claim 18 are applicable to claim 42.

Regarding Claim 43: The analogous arguments made regarding claim 23 are applicable to claim 43.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma in view of Poggio et al. (PN 6,421,463). (hereinafter Poggio)

Regarding Claim 7: Sharma discloses an apparatus as claimed in claim 5, where a first shift produces a second shift. However, Sharma does not include that the magnitudes of these shifts nor does it include that the transform domain having only odd number shifts. However, Poggio teaches the method wherein said first and second numbers are two and one respectively, said information material being shifted by one data symbol (col. 8 lines 22-24), each of said start positions in said transform domain corresponding to odd numbers of shifts of said information material data symbols (col. 13 lines 4-7). [Poggio explains that a shift of four pixels would correspond to a shift in one transform coefficient. Poggio also shows that this relationship is dependent on the desired scale by indicating that for a coarser scale a shift of eight pixels would only shift the transform representation one coefficient. It is obvious that a scale could be chosen that a shift of

two pixels could correspond to a shift in one coefficient. Also Poggio teaches that it is desirable to have only odd numbers of shifts in the transform domain. Actually, Poggio uses the even coefficients and drops the odd coefficients, but it is obvious that this could be reversed. It is also obvious to one of ordinary skill in the art to modify Sharma with Poggio because both teach wavelet transformation in a detection apparatus. Furthermore, one would be motivated to make this modification to reduce computation and increase efficiency.

Allowable Subject Matter

6. Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Honsinger (PN 6,678,390) is cited for teaching watermark modulating with a carrier, modulated data embedding, correlation utilizing the carrier at multiple shift possibilities, and the extraction of the watermark based on the results of correlation.
- Rhoads (PN 6,307,949) is cited for teaching watermark detection at plural shift possibilities utilizing wavelet transformation.

- Muratani et al. (PN 6,757,405) is cited for teaching transformation, watermark modulation, watermark embedding, and watermark detection using the sequence used for modulation.
- Hannigan et al. (PN 6,674,876) is cited for teaching embedding watermark data into sub-bands.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig W Kronenthal whose telephone number is (703) 305-8696. The examiner can normally be reached on 8:00 am - 5:00 pm / Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 306-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/23/04
CWK

MEHRDAD DASTOURI
PRIMARY EXAMINER

Mehrdad Dastouri